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ABSTRACT

This article maintains that children's inability to learn and relate to others is due to insufficient or incomplete bonding (a process that binds two people together in a close, primary relationship) especially in infancy and early childhood. The five principles of bonding cited include: the role of the senses in the process of bonding experienced by the infant in his interaction with the parent, the long-lasting effects of early events surrounding bonding at birth and infancy, and the traumatic experience of early separation from the parent. School age effects of inadequate bonding are discussed, and a promotion of interaction, or bonding, at the various stages of intellectual development is recommended. The return-to-basics movement is viewed in the light of a return to the basic needs of the child: a need to learn in a setting that does not do violence to the child's own inner timetable of development, a need to experience the security of a bond, and a need for education which does not emphasize one type of intelligence at the expense of another nor threaten the child's natural wholeness. (CM)

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Bonding: The First Basic in Education

Nancie Mae Brown

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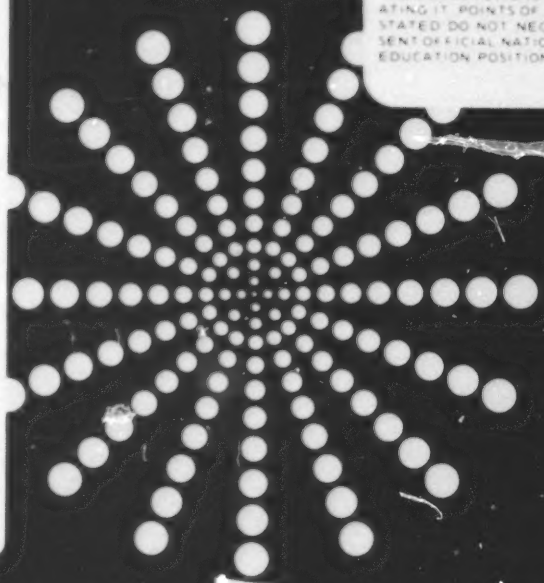

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NANCIE MAE BROWN

Nancie Brown's experience as a parent of three led her to return to school for a master's degree in education from Stanford University in 1964. She taught English for two years before initiating a high school learning disabilities program in the San Francisco Bay area in the late sixties. She later became coordinator of the district's 15 classes for the educationally handicapped. In 1975 Brown and Joseph Chilton Pearce began giving seminars and lectures based on the new theories and research in child development presented in Pearce's book, *Magical Child: Rediscovering Nature's Plan for Our Children.*

In February, 1977, Brown joined the Red Bluff High School District in northern California to start an alternative program for 14- to 16-year-olds in a continuation high school. Her new responsibilities include directing a teenmother-infant care program. In addition to teaching, Brown is actively involved in presenting workshops and classes in the San Francisco Bay area on birth, bonding, and alternatives to traditional views of child development.

Author of several articles for parents and educators, Brown is currently writing a book called *Guide to New Age Parenting.*

Bonding: The First Basic in Education

By Nancie Mae Brown

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Back to Basics: The Curriculum or the Child?

Recently in Walnut Creek, California, parents lined up before dawn to enroll their children in the newest alternative elementary school, one teaching only the "basics," the classic three Rs. There is already a waiting list of children, enrolled by anxious parents, for the second such school in the district, which is to open soon. Most educators are painfully aware that achievement test scores have dropped significantly in recent years. Seventy-five percent of the entering freshman class of the University of California failed the English entrance examination in 1976. The number of students identified as learning handicapped increases each year, and birth damage alone cannot be held accountable for such large numbers of learning problems. How can we explain such widespread underachievement? "Back to basics" is the newest cause célèbre in education, and once again curriculum has become the scapegoat.

The underlying assumption in the back-to-basics movement is that the child has a readiness and ability to learn reading, writing, and arithmetic in the primary grades if taught properly and without the diluting influence of "frills" in the curriculum such as art, music, or values clarification activities. This line of argument puts the blame for the child's lack of learning on the teacher and the curriculum. Yet it is possible we have been looking at the wrong side of the teacher's desk for the solution to our problem. We're like the man in the Sufi story who is looking for his lost key outside his house, although he says the last place he saw it was inside. When asked why he doesn't look for it inside, the man replies, "The light is better out here."

Children are not able to tell us in intellectual or adult terms why they are not succeeding in school. Jean Piaget's work in identifying stages of learning in children shows us that a child is not ordinarily capable of true abstract expression or learning until around age 11. Before that age, children learn best and express themselves more accurately through concrete actions and the physical senses. The children in our classrooms are conveying to us, through their actions, that all is not well with them. And because they cannot tell us what all these signs of distress are about, we must look to researchers in child development to identify some underlying patterns of behavior that may translate these messages for us. Possibly this research can illuminate our search for the lost key—somewhere within the children themselves.

New research in child development, particularly infant development, sheds light on a fascinating and little understood area of behavior called bonding. It suggests a new way of approaching what is truly basic for all children in order for normal growth and learning to occur. Bonding—*a process that binds two people together in a close, primary relationship*—may very well be a key to understanding why so many children who possess normal intelligence and are not brain damaged nevertheless do not succeed in the classroom and/or fail to relate well with their schoolmates or teachers. The problems in education today are widespread and complex. It would be naive to assert that bonding alone, or more accurately the lack of it, is the only factor involved. However, the fact that bonding has been found to be such an early determinant of behavior, one whose effects last well into childhood and even into adulthood, makes bonding a critical issue for educators today. And what we can learn about bonding may reveal something truly basic about children.

Bonding

Children who have been incompletely bonded in infancy and early childhood may be unable to relate well to others at home or school. As they grow older, they do not do well scholastically. The anxiety level in incompletely bonded children is apt to be so high that they cannot handle the necessary stress of learning and the give-and-take of relationships in a normal size classroom of 25 or 30 students. The truth of these statements is best shown by the real life examples of two students, Laura and Tim.

Laura

Laura bites her fingernails while her grandmother speaks. I have never seen nails so badly bitten. They are not just short; on some fingers there remains only a jagged nub of a nail. There is at least one nail totally missing. Laura is pretty, slender, slightly pale. She has run away from home four times, this last time leaving her home two states away only to be picked up by the California authorities and released to her grandparents who live in northern California. She refuses to return to her parents' home. Laura has been permanently expelled from the public schools in her home state, although she is only 14. She thinks she may be pregnant.

Laura has a history of failure in school, although she is obviously not mentally retarded nor does she fit the prototype of a juvenile delinquent despite her runaway behavior. Although she once went to a special clinic where she was diagnosed as dyslexic, I found that she

could read, although about three years behind grade level. Her math skills were lower still. Laura attended school infrequently during the past year before she was expelled. However, she seemed willing to attend our program, at least initially. On the basis of her past history, future attendance did not look promising.

In the days to come I learned more about Laura. Her pregnancy turned out to be a false alarm, but she continued to refuse contraceptive advice from her grandparents' doctor and seemed driven to seek attention from the opposite sex at any cost. She confided that she cried herself to sleep most nights and had been doing this before she ran away from home. Rarely could she sit still or stay in one place in the classroom for more than short periods of time. Was she from a broken home or disadvantaged family? No. In fact, at home she had owned her own horse and said she had never wanted for clothes or spending money. By current teen-age standards Laura seemed uninterested in material goods. She loved animals and small babies. Prompted by a hunch, we took Laura's developmental history from her grandmother within a few days after she enrolled in our school. Our suspicion that a severe interruption in bonding had taken place in early infancy was confirmed. From that point on we centered our approach on making Laura feel loved and appreciated. From then on, Laura did not miss one day from the time she entered the program until school closed for summer vacation seven weeks later. She was late only twice, once because she had a doctor's appointment. In fact she often came to school early.

Laura appeared to suffer from (and suffer is a very appropriate word) an acute anxiety stemming from her lack of bonding as an infant. She was born prematurely and weighed only three pounds at birth. She spent the first months of her life in a hospital incubator. Although it was kept at a temperature to insure her physical survival, the incubator could not provide the kind of personal warmth she needed and still craves.

Tim

Whenever I think of Tim, I picture him tilting back on the hind legs of a chair positioned in a corner of the room, arms folded in front

of his chest. He was never unfriendly, merely on guard. That was how he looked the first day I met him when I interviewed him for the program. Even in the classroom, no matter what the activity, Tim selected a corner of the room in which to work. Unless writing directly on a table top, he resumed the characteristic pose on two legs of a chair. If his favorite corner was not available, he chose another.

Tim had a long history of school failure, mostly as a result of truancy. His basic skills ranged between one and two years below grade level. He was obviously intelligent, occasionally displaying a sort of cunning—a rural version of "street [illegible]. A few months short of 16, he was slightly on the small side for his age. His attention span, like Laura's, was short, especially if he had to remain seated in the non-tilted position for more than 15 or 20 minutes. What he preferred to talk about most was his favorite pastime, smoking marijuana, and also to complain about his mother, who was, he thought, unjustly critical of his habits with pot. The fact that Tim had spent time in a juvenile detention home for growing the illegal plant in a local park made the topic an even more central issue at home. Although he appeared gregarious and self-confident, there was always an underlying current of distrust and lack of ease. What appeared to be a friendly give-and-take with peers often turned out to be a self-serving relationship, with Tim taking more than his share. Yet there was something really likable about Tim; at times he seemed to reach out to respond to our overtures. Several times it seemed as though something were about to break through to the surface. Then Tim would be absent the next day or maybe several days. As I noticed this pattern emerging, I felt it wise not to delay any longer meeting Tim's mother and getting a developmental history.

What I learned stunned me and at the same time provided me with a framework in which to work with Tim. We knew then not to take personally Tim's withdrawals, either his sitting in the corner or cutting school. He seemed to be repeating a pattern begun when he was 4 years old. At that time he experienced a severe traumatic separation from his parents, a breaking of the bond, particularly with his mother. When Tim was 4 he was abruptly placed in a foster home and did not see either parent for some time because of a highly contested custody battle.

The relationship between Tim's parents was particularly disturbed. Tim's father sent anonymous hate mail to Tim's mother, even while the father was still living with the family. After his distressing separation from his parents, Tim was returned home and was noticeably prone to cling to his mother, not wanting her out of sight. A few weeks later he was sent to kindergarten against his wishes. He cried and protested. He felt anger toward his mother for sending him away each day and toward the school for keeping him there. Neither Tim nor his mother seem aware of the long-lasting effect of these early experiences.

Despite various attempts to break Tim's pattern of behavior stemming from the disrupted bond, when school closed in June (he had been enrolled only the last two months), it appeared that we had not succeeded with him. He cut school more and more frequently; he was once again well entrenched in his old pattern. Out of desperation we tried one more parent-student conference on the last day of school. We have no way of knowing the effect of that conference, but we do know that Tim totally surprised us in the fall. He missed only one day in the first month of classes.

How incomplete bonding affected both Laura and Tim, and why we succeeded better with Laura than Tim at first will become clearer as we examine the nature of bonding. The development and learning of far more students than we realize has been seriously upset by incomplete or insufficient bonding in infancy and early childhood. Unfortunately, most parents, educators, school counselors, and psychologists have not been aware of the ways in which bonding or its absence can affect a child's ability to learn and relate to others. Yet anxiety about the bond creates behavior and learning problems for children that cross social, economic, and racial lines.

Bonding is a unique and special state or relationship between two people that persists through time. Each of us is involved in bonds of relationship throughout our lifetime. Many are secondary bonds that are formed in adulthood through our jobs and recreational activities. It is the primary bonds involving the parent-child relationship beginning in infancy that we are concerned about here. Bonding for the child includes love, but it goes beyond the purely psychological to in-

clude a biological level. This is particularly true in infancy when the child is biologically dependent upon his parents, especially on his mother. Yet bonding is not a dependency relationship. In fact, for the bond to be firmly established there must be a two-way interaction, an exchange of energy equally between two persons. Thus it is more than a mere receiver-sender relationship.

Bonding undoubtedly begins in the womb, but becomes visibly functional at birth and continues to be important throughout childhood. It is a fundamental process in the development of all children for two reasons: First, because it is the wellspring of a sound, healthy, normal, social self. Throughout the child's lifetime "the strength and character of this attachment [the bond] will influence the quality of all future bonds to other individuals" (Klaus and Kennell, p. 2).* Children like Tim, as John Bowlby tells us in *Attachment and Loss*, Vol. I, who have experienced a severe and prolonged separation in childhood, pass beyond their longing for the bond because they dare not risk its loss again. In effect, they build defenses against caring. They protect themselves against future loss of relationship by maintaining a position of nonattachment to others, or at best a tentative attachment. Second, bonding is the basis for intellectual development. Like Laura, the incompletely bonded child is driven to expend nervous energy in search of the bond that never formed. "The intelligence can never unfold as designed because it never gets beyond this primal need . . . in fact all intellectual activity no matter how developed, will be used in search for that" (Pearce, p. 63). To appreciate how basic bonding is to well-being and learning we must go further into what researchers have discovered about bonding. As we do so, various principles about bonding will emerge, and we will learn more about students like Laura and Tim. And perhaps even a bit more about ourselves.

*Full citations for references in the text may be found in the Bibliography.

Research on Bonding

Studies done on rats, sheep, goats, monkeys, and other animals show that separation of a newborn from its mother alters the maternal behavior and jeopardizes the chances for the young's survival. One of the best-known studies on this attachment behavior (as bonding is called by researchers) was done by Harry Harlow on rhesus monkeys. This classic study demonstrated that orphaned monkeys preferred a stuffed, cuddly, tactile, surrogate "mother" to a bare wire-framed form that contained a nipple, the only source of food in the cage. This showed that the basis of the maternal-infant relationship or bond went far deeper than the biological need for nutrition. Not only did the orphaned monkey spend all of its time on the cuddly mother substitute, but when its "mother" was removed the baby rhesus huddled in a corner in the fetal position. The monkey was unable to learn about, play with, or relate to new objects in the environment until the return of the "mother."

Perhaps the first recorded "research" on bonding dealing with human infants was conducted by a thirteenth-century German emperor interested in finding out what kind of language children would speak if they grew up in the total absence of speech. The emperor arranged for foster mothers to care for orphaned infants. Although the children were fed and bathed, they were not spoken to or cooed over. The project was a failure; all of the children died at an early age. Apparently more than bread and water was needed to insure survival.

Ashley Montagu reports in *Touching* that toward the end of the nineteenth century more than half of the infants in their first year of life died from a disease called *marasmus* (the Greek word for "wasting away"). Even well into this century *marasmus* claimed countless in-

fant lives, although mostly in institutionalized settings, but sometimes in upper-class homes where all physical needs were amply provided for. After World War II it was discovered that the deaths had nothing to do with disease but resulted from lack of physical handling. Infant mortality rates fell from 35% to 10% at Bellevue Hospital in New York when "mothering" of the infants was introduced.

Physicians Marshall Klaus and John Kennell at Case Western Reserve Hospital became interested in the bonding process a few years ago when it came to their attention that many prematurely born infants who left the hospital at normal birth weight, after weeks or months in an incubator, often were returned to the hospital as sickly infants. No organic disease could be found, and the illness was called simply the "failure to thrive" syndrome. After studying this phenomenon, it was found that the long separation of mother and child, because of the premature birth, interfered with the natural bonding process. This occurred because the mother (and undoubtedly the father, too) had not had an opportunity for parental feelings to develop. The infants, once released to the mother's care, responded to a lack of positive mothering and began to decline despite good physical care. They were not neglected or abused infants; however, the bonding that nature programs to take place shortly after birth had not occurred. In its absence a sort of early form of *marasmus* develops. Bonding appears to be a primary requisite for survival, as important as food and drink.

An incubator with a glass window was invented at the turn of the century by a German neonatologist named Budin, who was concerned with the isolation of the premature infant from the mother. In a book called *The Nursling* (1907) he noted that "a certain number of mothers abandon the babies whose needs they have not had to meet, and in whom they have lost all interest." Klaus and Kennell report in *Maternal-Infant Bonding* that a pupil of Budin, who apparently hadn't heeded the advice in his mentor's book, arranged for a traveling exposition of premature infants in the new incubators, which toured the major world fairs between 1902 and 1940. He found that mothers of the babies were often unwilling to take them back once they had grown to five pounds. The need for bonding, which exists in all children, has been dramatically illustrated through observations of premature

infants whose delicate balance of survival makes bonding all the more critical. This need is summarized in our first principle on bonding:

BONDING PRINCIPLE 1: *The infant has a built-in need to form a primary bond with the parent(s). Bonding is a primary instinct designed to assure optimal psycho-motor development in infants as well as their emotional well-being.*

The physical senses come into play in bonding and participate in the two-way interaction between parent and child. Although each of the senses plays a special role in the bonding process, some appear to be involved more than others. Even though we will discuss them separately, it is important to remember that the infant's senses of touch, sight, sound, hearing, and smell work together co-creating the bond with the parent(s). As we look at the importance of the senses in early bonding, let us remember that the child still learns primarily through his senses until ages 10 to 12 when, according to Piaget, the child becomes capable of higher levels of thinking and conceptualization not dependent upon physical interaction. According to A. Jean Ayers, author of *Sensory Integration and Learning Disorders* (1973), lack of early sensory stimulation interferes with normal learning later on in childhood.

Touch

Most mammals lick their young extensively, an activity comparable to massage or extensive caressing in humans (primates are constantly "grooming" each other and their offspring). Many animal mothers such as goats and sheep, will reject their young when not allowed to touch them. This maternal licking and close physical contact in animals appears to provide important stimulation for various biological processes, including the immune system and that part of the brain that processes sensory information.

The importance of touch between the human infant and parent is paramount. The skin of the newborn needs to be "fed" by being lovingly handled, gently massaged, caressed, and cuddled. The French obstetrician Frederick Leboyer maintains that stroking and massaging a baby's skin after birth helps to reduce the stress of birth, allowing the

baby to adjust more quickly to a natural rhythm or pattern of sleep, feeding, and wakefulness. This avoids problems of hyperactivity, indigestion, and crying typical of stressed infants, particularly those whose mothers used drugs during delivery. Touch stimulates important brain centers of the infant as well. In particular it activates a part of the mid-brain called the riticular formation, which acts as an on/off switch for general states of consciousness such as sleep or wakefulness.

When touch is combined with movement, such as during rocking or carrying, it plays a vital role in development in both primates and humans. In the Time-Life film *Rock-A-Bye-Baby* (1971), one can compare the behaviors of monkeys reared with furry but stationary surrogate mothers to those with surrogates randomly rotated in the cage. The monkeys that were deprived of rocking movements, even though able to cling to a furry "mother," grew into fearful, unfriendly creatures that displayed a tendency to rock themselves compulsively, reminiscent of emotionally disturbed children who sit in one spot and rock their bodies or bang their heads for lengthy periods of time. Self-destructive behavior like biting their own skins is as common with the monkeys as it is with autistic children. Considerable research has gone into investigating the relationship between the lack of contact and movement in infancy to faulty development of the gravity-vestibular system that organizes one's perceptual orientation and movement in space. Lack of this sensory integration has been linked to learning disabilities, autism, crib death, and mental illness.

James Prescott, a neuropyschologist for the National Institute of Mental Health, believes that body deprivation of touch and movement are basic causes of many emotional disturbances in children which extend into adult life. In a paper titled "Body Pleasure and the Origins of Violence," published in *The Futurist* in 1975, Prescott reports on an extensive cross-cultural study which shows that the principal cause of human violence is a lack of body pleasure during the formative periods of life. In nontechnological societies, the degree of adult violence (such as crimes of assault and warlike activities) could be predicted accurately on the basis of the amount of tender loving care (body touch and movement) the adults received as infants and children. A small percentage of societies that lacked this in childhood did not become vio-

lent and hostile as adults when adequate touching and sensory experiences were permitted in adolescence.

Since cribs were advocated by pediatricians during the period from the 1890s to the 1920s to replace the cradle, most children have grown up spending a rather large part of their infancy in stationary beds removed from frequent human touch and movement. Touch, experienced through the skin, is the only physical sense that can be experienced on all parts of the body. Thus lack of physical nurturing through touching has serious consequences for bonding as well as normal development, because there can be little compensation for missed opportunities through the other senses.

Sight

A number of recent studies have pointed out that the newborn sees and registers through sight much more than we had previously realized. Studies by scientists Robert Fantz and T. B. Brazelton show that a newborn can see and identify the human face and even turn his head to follow a face, particularly his mother's. The eyes play a very important role in bonding. Infants and mothers spend long periods of time gazing into each other's eyes during nursing (whether the baby is breast or bottle fed). Klaus and Kennell call this the *en face* position. When the *en face* relationship occurs infrequently, Klaus and Kennell noticed significantly fewer bonding behaviors such as kissing, smiling, and caressing taking place.

Important to the role of sight in bonding is the smile. Not only the mother's (or father's) smile, but the baby's, too. When it comes to bonding, Klaus and Kennell say "you can't love a dishrag," meaning that response or feedback from the object of your attention is essential if interaction is to take place and grow. When an infant smiles, adults naturally smile in return. Unfortunately, babies delivered from anesthetized mothers smile infrequently. Only when birth stress is gone, at around two months of age for most infants, does regular smiling begin. Yet babies delivered by natural childbirth methods, and in environments that do not produce a sensory overload on the newborn, smile within 12 to 36 hours after delivery. Leboyer's book and film, *Birth Without Violence*, has beautifully photographed newborns'

smiles. Unfortunately, many hospital practices interfere with early eye-to-eye contact between mother and child. It is standard procedure in many hospitals to remove the newborn to the nursery within 10 minutes after birth and to keep him there for an eight-hour observation. Silver nitrate drops (required in most states to prevent blindness from venereal contact) placed in the newborns' eyes cause swelling and irritation, causing infants to keep their eyes closed. If the drops are used directly after birth infants have no opportunity to seek out the eyes of their mothers, an instinctual response at birth.

Peter Wolf has identified six states of consciousness in the newborn, which range from hard crying through sleeping to wakefulness. Studies show that learning occurs in a wide-awake, alert state. It is comparable to the state of alert attention in the adult. During the process of development an infant gradually spends more and more time in the waking state. It has been shown that this alert state occurs within the first hour after birth for most newborns. Researchers say that this is the optimum time for bonding, with sight acting as the synthesizer of this experience for all the senses. This new information has important implications for current hospital practices that keep the infant from the parents for long stretches of time.

Sound

William Condon and Louis Sander of Boston University Medical Center found that babies as young as 12 hours to two weeks old had the ability to move their bodies in synchronous movement in response to human speech. These were not random movements, since these units of muscular response could be both repeated and predicted accurately. The body movements, which are difficult to see with the naked eye but readily apparent when filmed sequences are slowed down, could not be elicited when the stimulus was nonsense syllables. This research shows us that the newborn baby is capable of interacting with the physical sense of sound and with movement in one of the most richly complex areas of all human communication: language. The infants showed an ability to coordinate their movements to the sounds of their mothers' speech while they were in the wide-awake alert state. Responding to the mother's voice through the synchronized movements of the body is

yet another mode of the bonding process. That the infant can do this so soon after birth indicates that such responses (each infant has his unique repertoire of movements) were learned in the womb. It appears that the sound of the mother's voice in the womb is one of the earliest sensory stimuli in the mother-child bond.

Leboyer recommends that the pregnant woman sing or hum to her unborn child as a way of communicating, i.e., forming the bond, before birth. When the tune is repeated after birth it comes as a familiar, reassuring sound to the baby, one it readily responds to.

Too much quiet is probably not natural for babies, who depend on hearing to know that the parent is still near when out of sight or touch. A baby's cry plays a role in the bonding interchange also. Studies show that an infant will quickly stop crying if picked up within 90 seconds; any longer than that and the initial cry turns into hard crying, which is more difficult to stop. Responding promptly to the baby's cry, as well as talking and humming to him, is part of the bonding process for parents. Babies participate by responding to parents with their body movements and their own vocalizations.

Smell

The newborn, Klaus and Kennell tell us, can identify by odor its mother's nursing pad from among a group of other mother's pads. As adults we pay little attention to the sense of smell—except by making an effort to eliminate all but perfumed odors. Consequently, there has been less investigation of the role this sense plays in infancy and bonding.

Having reviewed the research on the role of the senses in bonding, we are prepared to state our second principle concerning bonding.

BONDING PRINCIPLE 2: *Interacting with the parent, an infant experiences the process of bonding through the senses. Sensory activities that are called into play for optimum bonding are: physical nurturing, holding and rocking, eye-to-eye contact and smiling, soothing sounds of the human voice and speech.*

Klaus and Kennell say that early events surrounding bonding in infancy have long-lasting effects, extending well into childhood and

even to adulthood. Ashley Montagu speaks of the deep pallor and loss of skin tone observable in children suffering from the "maternal deprivation syndrome" (lack of normal mothering and handling). He also reports that children who come from homes lacking in tactile stimulation and emotional warmth (the two usually go together) suffer a lack of physical and mental growth relative to other children. However, it is not merely gross neglect that has long-lasting effects. That very early experiences of the newborn can have far-reaching results for the child was shown in a study reported in *Maternal-Infant Bonding*. Newborns given 50 minutes of skin-to-skin contact with their mothers immediately after delivery displayed a significantly greater number of bonding behaviors, i.e., kissing, fondling, smiling, etc., that persisted throughout infancy than infants who did not have that contact. In other experiments, newborns who spent 16 additional hours per day with their mothers in the hospital over a three-day period were more verbally responsive to their mothers during the five years of childhood than were a control group. The children at age 3 had better language skills than the controls, and at age 5 scored significantly higher on IQ tests.

Until recently we have failed to realize how highly perceptive and aware the newborn is. The old view of the newborn was that the infant is unaware of early sensory experiences, and that little learning occurs during the first few months. New research on newborns, some of which we have discussed under the principles of bonding, reveals the newborn to be highly perceptive, receptive, and intelligent, fully capable of sensing and recording his earliest impressions of the environment as primary learnings. These early learnings take place before the development of expressive verbal language and before the onset of conscious memory, a fact that has prevented researchers, until recently, from appreciating their significance.

David Cheek, a San Francisco physician and past president of the American Society of Clinical Hypnosis, has published several papers on the use of light hypnosis to review birth memory. In 30 years of work with more than 1,000 patients, Cheek discovered that human beings appear to be "imprinted" at birth with short-term memories that do not fade with time. Imprinting is a term originally used by Konrad

Lorenz to describe the behavior of geese and other animals; the process appears to be characteristic of human infants as well. Cheek has verified, with hospital records, birth memories revived during hypnosis. He found through his work with hypnosis that the effects of negative birth experiences are often directly related to a wide variety of physical and emotional difficulties that persist into adulthood. By reviewing early birth memories under hypnosis and consciously recreating the experience in a more positive light, Cheek's patients have found release from a variety of physical and emotional problems.

This discussion brings us to our next principle on bonding.

BONDING PRINCIPLE 3: ***Early events surrounding bonding at birth and infancy have long-lasting effects. These early experiences predispose the child to patterns of behavior and learning that can persist into childhood and adulthood.***

Because the human infant is physically dependent upon the parent for such a long time after birth, the child's greatest fear is that of abandonment. This instinctual emotion has been carefully studied by John Bowlby and others. Bowlby believes fear of abandonment is a primary instinct in human beings and that it plays an important role in maintaining the bond of parent-infant closeness.

Studies with Harlow's infant monkeys suggested a critical period of time during which normal attachment or bonding takes place and beyond which it does not. Klaus and Kennell's work with human infants indicates that the critical time for bonding is within the first few hours of birth. After the critical period passes, bonding is still possible for the human species, but not at its optimum level, because the effects of separation upon bonding are so immediate.

Bowlby is quick to point out that separation creates anxiety for the infant at any time it occurs. Bowlby first studied the effects of separation in infants and learned that as a person progresses beyond infancy the anxiety stemming from separation is manifested in more complex ways and eventually turns inward instead of being "acted out" as it is with younger children. As the child grows, this anxiety changes from the original, specific anxiety over abandonment by the parents to a generalized anxiety over the loss of parental love or the disapproval of the child's behavior by authority figures. These early behavior pat-

terns—reactions to separation or the threat of separation—become prototypes for behavior throughout adult life, as was observable in the cases of Laura and Tim noted in our opening pages.

In studies of preschool children, Bowlby showed that the bond can be damaged or even broken at any time during childhood, but a child is most vulnerable during the first three to four years. Before the age of 3 a child is likely to feel insecure when absent from his parents unless the baby sitter is well known to the child, preferably having become known in the presence of the parent. The young child who never shows anxiety, grief, anger, or ambivalence over his parent's absences can be suspected of already having become more or less permanently detached as a defense against further pain of loss. Most parents are unaware, particularly in our mobile society, of the extent to which frequent separations or even threatened separations from the parent create anxiety for the child. In one study a large proportion of parents admitted to using the threat of separation to get their children to behave. Sometimes it was used as a form of teasing. For the child, however, separation is likely to trigger anxiety about survival and is not an occasion for humor.

In addition to anxiety, separation brings actual sensory deprivation because instinctual behaviors of the baby involving touch, movement, vocal sounds, and smiling are not responded to. On the biophysical level, brain cell connections that form patterns in the brain (which in the infant are coordinated with the body) may not form, or they may not be sufficiently integrated. These patterns in the brain are what learning is on a physiological level. To deprive a child of these early learnings is like sending him out into the world to play cards without a complete deck. When the child is also anxious and under stress because of the incomplete bonding that came with the dealing of his deck, then he is unable even to play well with the cards he has.

These effects of separation upon infant and child bring us to our last principle.

BONDING PRINCIPLE 4: *Separation of the infant and child from sensory interactions with the parent weakens the bond, producing anxiety and a lack of the primary biophysical learnings needed for optimum development. Prolonged separations may destroy the bond.*

Bonding in Other Cultures

Our birth and child-rearing practices are such that separation of infants from their mothers at birth and children from their parents in early childhood seem normal. These practices have made it difficult for us to understand what bonding does when it is allowed to develop fully.

Joseph Chilton Pearce, in the *Magical Child*, tells the story of an American woman visiting in Africa who was amazed to learn that, although the African mothers carried their babies next to their skins without diapers, neither the child nor the mother ever appeared to be soiled. When she inquired, she was told the mothers took the infants to the bushes for their elimination needs and that the mother just "knew," even with the tiniest infants, when it was time to go to the bushes. Frederick Leboyer, in a public lecture in San Francisco in 1976, reported that for an Indian woman to have her sari soiled by her diaperless infant would make the mother the laughing stock of her friends. For then all would know that she was not fully in the bond with her infant.

Ugandan infants studied by Marcelle Gaber in the fifties were found to be exceptionally precocious. Several hundred babies delivered by their mothers in native villages (not in hospitals) were given standard developmental tests. Babies two days old could sit (held only at the arms) with perfectly balanced heads and focused eyes. Six-week-old infants sat unaided and smiled gleefully at themselves in a mirror. At six and seven months of age most of the infants could walk and per-

form a sophisticated toy retrieval test that babies in Western cultures cannot do until about 14-months old.

The mothers, who had never heard of bonding, nevertheless characterized it at its best. Here is Gaber's description:

> She never leaves him, carries him on her back—often in skin-to-skin contact—wherever she goes, sleeps with him, feeds him on demand at all hours of the day and night, forbids him nothing, and never chastises him. He lives in complete satisfaction and security, always under her protection. He is, moreover, continually being stimulated by seeing her at her various occupations and hearing her interminable conversations, and because he is always with her, his world is relatively extensive. . . . During the Gesell tests, the loving and warm behavior of the mothers, always ready to help if help would be valuable, showed very clearly how the children lived surrounded by affection.

Mary Ainsworth studied Ugandan infants in the late sixties and found that their precocity came from strong sensorimotor stimulation. The babies showed a definite attachment preference for their own mothers as early as 15 weeks, much earlier than Western babies do. Ainsworth's work shows the important role that increased sensorimotor stimulation (touching, moving, smiling, speaking) plays in the bonding process and in the development of intelligence.

Ugandan babies of the same socioeconomic group as those described above but born in hospitals did not have the exceptional psychomotor development described by Gaber. The difference seems to be not the hospital per se but the separation of mother and child that occurs there and the practices that deprive an infant of the total sensory environment of the mother (and father) so necessary for bonding and normal development of intelligence. Perhaps the physical and intellectual development of children is tied to heredity much less than we have thought and instead is directly related to our practices of nurturing. What happens to the Ugandan child around age 3 or 4 brings this point home. After weaning, which occurs late by our standards, the cultural tradition requires that the mother initiate a psychological and sometimes even geographical separation from the child. The child is ignored no matter how much he cries for his parent. The separation is permanent. The child's greatest fear, abandonment, is realized. The

child remains depressed for a long time and then is encouraged to get on with the tasks of learning about his culture. This traumatic experience apparently inhibits accelerated development at that point. In our own culture, the first days at kindergarten or preschool may have the same effect, although it is less obvious in many children, particularly when the bond was not secure in the first place.

School-Age Effects of Inadequate Bonding

Thus far we have shown what bonding is and have indicated how interference in the process may have long-lasting effects upon behavior, relationships, and learning. It is obvious that prevention is the best remedy. Yet even if sudden and sweeping changes could be made in childbirth and child rearing, we would still have the victims of past practices that interfere with good bonding. We would have many children known as the D-Ds—disturbed, delinquent, or disadvantaged. These children may reflect to an even greater extent than the average child a lack of bonding, with the consequent likelihood that early patterns of behavior have predisposed them to failure. Can what we know about bonding help them now? And what about the children who do not present specific learning or behavior problems in the classroom, yet whose achievement as a group reflects the overall decline in national achievement test scores. Can our knowledge of bonding be of use to them? We believe the answer to these questions is yes. Before we proceed to particular applications, we need to look at the school-age effects of early inadequate bonding.

Our first principle of bonding was that it is a primary drive, an instinct for survival not unlike that of the body's need for food and water. The child who survives the first few years of life can be assumed to have had sufficient bonding to insure biological survival. Yet mere survival is not tantamount to psychological well-being or optimal development of innate intelligence.

As a child whose belly is always empty will naturally orient his

energies toward satisfying that need, so will the child whose primary need for bonding is unsatisfied orient his major energies toward seeking that fulfillment. Yet to continue seeking without real satisfaction leads to anxiety. Anything that jeopardizes a primary survival need is apt to throw the human organism into disequilibrium. The longer the search for satisfaction in bonding goes unfulfilled, the more likely it is that that anxiety will develop into a chronic state of stress. The effects of prolonged stress persist far beyond the original cause for stress.

Laura and Tim are representative of the two major kinds of interference that can disrupt the bonding process: prolonged absence from the mother at birth or early infancy (Laura) or a traumatic event, separation, in early childhood (Tim). Laura, as a premature infant, experienced a severe interruption in bonding stemming from long months in the incubator. As the youngest of three children, all very close in age, Laura missed her share of time with her mother. Laura is an extreme case; yet any child who is separated from his mother, even for only his first day, and comes home to a family where there is little time for close physical nurturing is likely to have experienced similar deprivation. As a school-age child, Laura and those like her seek attention and affection constantly, displaying insecurity about their place in a group or in a given role in new situations. Such a child is less than fully accepted by his peers or teachers and may have so much anxiety that it spills over into outbursts and incidents in the classroom or playground.

John Bowlby tells us that the bonding-deprived child harbors unresolved anger and resentment, which was originally directed toward the parents but which later becomes generalized to other situations that may be emotionally reminiscent of the original deprivation experience. Laura's fingernails served as a sort of barometer of her feelings of security from one situation to another. Thus for Laura the threat of separation continued to have long lasting effects. She burst into tears at school on the day her grandfather threatened to send her away from the only home she knew aside from the one she had run away from.

Tim as an infant had apparently experienced a reasonably satisfactory bond. His mother had nursed him one-and-a-half years. Yet the traumatic events of separation which occurred around age 4, which

Tim was too young to understand as anything but abandonment, apparently molded him into a behavior pattern he still acted out. When Tim was returned from the foster home just in time for the opening of kindergarten, his mother reported she had to "beat him to get up in the morning, beat him to eat his breakfast, beat him to get on the bus, and at school he had to be dragged off." For months Tim cried and clung to his mother, begging to stay with her. Finally he "adjusted" to school in an apathetic way. Tim's mother thought it quite odd that such a child who had been so dependent would not, by the time he was in first grade, allow her to sew a button on his shirt or display routine affection. John Bowlby calls this pattern, which is observable and predictable in even very young children when there is damage to bonding through separation, "protest-despair-detachment" (withdrawal). Tim's behavior was the same with anyone who tried to get close to him, always ending in withdrawal, which in school was translated as truancy. Yet even his resistance to relationships, combined with occasional brave gestures of approach, gave a clue that he had once known the positive bond. For you can only deny that which first you have known, as Shakespeare knew when he wrote, "Methinks the lady doth protest too much." It is not just the separations in early childhood that may cause damage or anxiety. Bowlby (1973) states that many children are vulnerable to deprivation of the parent bond as late as 10 years of age.

The poorly bonded infant and young child lack important sensorimotor integration that develops when a child is frequently held, carried, rocked, or played with. The deficits are often reflected in maturational lags as the child reaches school age. A present concern of many elementary educators today is the lack of good sensorimotor integration reflected in eye-hand coordination, left-right orientation, balance, and spatial orientation. Through the pioneering work of A. Jean Ayers, many schools are adding sensorimotor training to the elementary curriculum because so many children lack abilities in these areas so important to learning basic skills. Ayers suggests on the basis of research and clinical experience that many learning disorders, particularly in reading, stem from early lack of integration of the senses. Poor sensorimotor coordination is often well compensated for or well

masked by the time a child reaches adolescence, but in the younger child is more easily identified and may suggest that early physical interactions in bonding were incomplete.

Children of any age, but particularly young ones who seem driven to touch everything and everyone, who are always in motion, and who seek out motion-filled activities (swinging, rocking, twirling, etc.), may be trying to put back into the system something that never was completed at earlier stages of development. How appropriate that we label such children "immature!" Rather than preventing the child from doing such things, as we usually do, the child may need more opportunities for touch and motion through acceptable, appropriate channels.

No matter which symptom of incompleted bonding may show up in the child's school behavior or learning, anxiety and inattentiveness are apt to be characteristic of most poorly bonded children. Those children whose main energies are invested in either a search for the bond that never formed adequately (Laura) or who fear the bond that once "betrayed" them (Tim) have little energy left over for traditional learning. The unrelieved tension yields a high level of stress.

Hans Seyle, winner of a Nobel Prize for his research on the effects of stress upon the mind and body, tells us that stress is the stuff of life. In fact, the pattern of stress followed by relaxation is a fundamental principle of the universe whether we're looking at biology or physics, energy or matter. Learning doesn't take place without stress, which is actually a state of high readiness or alertness. When a child or adult is faced with a new learning task, he is facing an unknown, and nature responds with the readiness-alert state, or stress. Relaxing the stress before it turns into acute stress allows for assimilation of learning, while too much tension is apt to block learning. Intelligence, like the body, cannot grow on a steady diet of stress unrelieved by relaxation. Children like Tim and Laura have little elasticity on the tension scale. Traditional learning methods or authoritarian classrooms demand more than their anxiety level can handle. They are apt to discharge excess tension in ways unacceptable in most schools.

Appropriate Stages for Learning

Proponents of the "return to the basics" movement advocate intensifying the basic academic curriculum as a solution to lack of achievement. Stepping up the academic pressure, particularly at the expense of areas of curriculum that promote self-expression, self-esteem, and positive relationships, is likely to produce greater anxiety for those children already stressed from incomplete bonding.

To utilize the principles of bonding in learning situations requires that they be in harmony with other research on the growth of intelligence. Some of this research may be familiar to us, but newer research and theory on mind/brain development, while probably less well known, has equally important lessons for parents and teachers. Let us look at some of this research.

Most teachers are familiar with the work of Jean Piaget, the Swiss psychologist and researcher who has observed children's behavior for over 50 years. Piaget identified four distinct stages of intellectual development and logical thinking: birth to one year, one year to age 7, 7 to 11, and 11 to 15. None of these stages can be skipped or omitted, although the rate of progress through each stage may vary widely with each child. The type of thinking found at a later stage cannot be taught to children at an earlier stage with any effectiveness. One experiment that attempted to teach concepts appropriate to later stages of development produced the following results: 1) it took longer to teach the material; 2) the children could not generalize the concepts to other situations; 3) older children not instructed in the concepts but who were given an opportunity to explore the same materials discovered the

same concepts by themselves and could readily apply them to other activities.

Gearing instruction to the child's level is an old adage in education, yet is often violated. As pressure is exerted from without, if not from within schools, to demonstrate higher achievement, some schools may be tempted to try the "earlier is better" solution. The reasoning goes, if the child is not learning his ABCs [substitute reading-writing-arithmetic] well enough at his present grade level, then we should teach it earlier so there is time for the child to have greater exposure or time to overcome failure if success does not occur first. Yet the "earlier is better" approach is not likely to be consistent with the child's developmental level and may only produce more failure or anxiety. Then the child will require remediation.

Not only are there stages for intellectual development which must be respected if learning is to take place, but there must also be a recognition that intelligence does not grow in a steadily progressive manner. School curricula are often developed on the assumption that it does. Yet research in brain function and brain growth by Herman Epstein of Brandeis University shows that there are brain growth spurts which occur, interestingly enough, at the onset of the stages of growth outlined by Piaget, at approximately ages 7, 11, and 15 (there are some growth spurt periods in the womb, at birth, and in early childhood as well). Epstein's research strongly suggests a direct correlation between the growth spurt periods and intellectual functioning.

While heightened periods of receptivity for new learning may last a year or two after the onset of the growth spurt periods, they are frequently followed by a trough period of comparable length during which readiness for new learning is slowed down. This is particularly the case between the ages of 13 and 15. Even in the well-known study on the role of teacher expectations and learning by Rosenthal and Jacobsen *(Pygmalion in the Classroom*, 1968), the achievement of students in both the control and experimental groups followed curves consistent with brain growth spurt data. Some of Epstein's conclusions from his studies are: new learning activities need to take into account the spurt periods *and* the trough periods, and the more abstract

learning activities in schools are best delayed until a child is in high school (age 15). Unfortunately, our academic expectations for children often do not allow for peak and trough learning periods. The onset of so many so-called reading problems coincide with the trough period, around age eight or nine, for many children. Of course each individual child's progress of development is unique within either Piaget's or Epstein's framework.

Another recent view of child development, which takes into account the research of Piaget and Epstein and incorporates research on bonding, is the psychobiological approach of Joseph Chilton Pearce. He sees each of the major stages at ages 1, 7, 11, and 15 as a special kind of environment for the interaction of intelligence, which he calls a matrix. In order for optimum development to occur at each stage, three things are provided by the matrix: 1) a source of energy, 2) new possibilities for learning, and 3) a safe place in which to explore the possibilities with this energy.

Pearce views intelligence as the ability to interact, rather than as a static intelligence quotient. The bonded child has a safe place in which to interact successfully within each matrix or stage. By exploring the possibilities through interaction, each matrix opens up more and more possibilities for learning. Pearce calls the first matrix the Mother, ages birth to 1; then the Earth, ages 1 to 7; followed by the Self, ages 7 to 11; and finally the Mind-Brain, ages 11 to 15. Successful bonding and knowledge from each preceding stage builds a safe place to stand and expand creative intelligence.

This view of development describes more than just intellectual development and provides a framework for all abilities latent in the child. Pearce sees bonding, first with the parents, then with Earth and Self, as the primary process for insuring the eventual unfolding of the highest functions of mind in later adolescence. Like Piaget and Epstein, Pearce advocates that learning be appropriate to each stage, yet he sees much more than intellectual pursuits as appropriate. He argues that the child's relationship to the earth or nature, to his body, and to his own inner experience through right brain hemisphere processing is part of nature's plan for the child. These relationships need to be developed just as much as intellectual processes do.

Return to the Basics: Recommendations and Guidelines

Advocates of the back-to-basics movement would have us believe that the lower achievement levels of students today indicate a need either for a new curriculum or for revision of instructional methods. Both of these approaches have been tried many times; in fact, they are tried each time there is a new "crisis" in education. Yet there has yet to be any great improvement in the overall quality of education. Is it not time we stop changing the form of the solution and look at the substance of the problem?

The quality of education has a lot to do with the quality of life in childhood. Right now for a great many children, the quality of life is very poor, despite affluence. Child abuse, the high rate of childhood suicide, divorce, juvenile crime, and violence in the schools reflect the quality of life for many of today's children. It is time to focus on a substantive approach, one based on research on the child and bonding, child development, and growth of intelligence. With this approach we can restore to children what is basic to the well-being of all human life: a harmonious relationship with people, the earth, and the universe. Such relationship nourishes the growth of a creative, dynamic intelligence and a caring human being.

One way we can return to the basic needs of the child is to follow the guidelines that the principles of bonding give us. My recommendations will be those that promote or support interaction, for bonding involves an exchange of energy between two people. One may be bonded with many people in one's lifetime, but bonding takes place with one

person at a time. Guidelines for bonding are different from teaching methods, as the latter only describe one side of an interaction, the teacher's, whereas bonding describes a two-way process.

A primary guideline is the need for a student to form a bond with the teacher (as a parent figure), which stems from the child's primary drive for bonding, and thus is the first step in insuring a successful environment for growth and learning. In the bonding process the teacher assumes the role of matrix for the students; acts as the primary source of energy for the class; and creates a safe environment, physically and emotionally, in which students may explore and learn.

Particularly on the first day and during the early weeks of school the teacher should find time for a direct personal interchange, however brief, with each student. The teacher should explore ways to nourish the child's self-esteem through recognition of the individuality of each student. Researchers at the Graduate School of Education, Rutgers University, have found that the good elementary teacher displays characteristics of warmth and acceptance, yet is not forceful. Those teachers who encourage students, respond to their remarks, and run flexible classrooms improve pupils' self-esteem, self-concepts, and their attitudes toward school. A study, *The Relationship of Self-Concept to Beginning Reading* (U.S. Office of Education project #377, 1962) demonstrated that in second and third grades self-concept was a better predictor of success or failure in reading than IQ tests. Reading proficiency could be accurately predicted on the basis of the degree of self-confidence in kindergarten alone.

The daily interpersonal contact with each student ideally includes the four primary sensory elements of bonding: eye-to-eye contact, smiling, verbal or nonverbal communication, and touch. Even the older students respond well to these elements of bonding. For the child who has lacked opportunities for touch and movement experiences, sensorimotor integration activities can be initiated. Consult the Bibliography of this fastback for useful resources.

Another way the teacher can promote a safe place within each child is through the application of transpersonal psychology techniques in the classroom. The use of meditation and centering, guided fantasy, exploring creativity through dreams and art work, biofeedback, and

physical and musical activities are a few of the transpersonal approaches that expand the child's inner experience and resources. Some resources for transpersonal education are cited in the Bibliography.

Particularly with the "3-D" student (delinquent, disturbed, or disadvantaged) a parent interview that includes a history of birth, bonding, and early childhood development may be extremely useful to the teacher. For those students whose early childhood did include stressful events, particularly events that may have affected the bond, the use of visual imagery and positive suggestion seems to effect change for many when used in conjunction with relaxation techniques. The sensitive use of such techniques can assist the troubled student in re-creating a more positive approach to present difficulties. Dr. Gerald Jampolsky, a child psychiatrist and founder of the Center for Attitudinal Healing in Tiburon, California, has brought about dramatic improvement in reading ability with so-called learning handicapped children using group relaxation and guided fantasy techniques.

In addition to supporting the bond with the child directly, the teacher needs to gear instruction to take into account the appropriate stages of development. Obviously any attempt to use the bond to get a child to perform at an academic level that is not in harmony with his biophysical readiness will ultimately backfire. Ideally, the curriculum should provide for such periods of high and low readiness for new learning. Periods of low academic readiness are times for conducting additional opportunities for bonding with nature. For example, outdoor education programs of any kind are usually entered into eagerly, even by so-called reluctant learners. The latter may, in fact, demonstrate strengths not apparent in the traditional classroom program. Many inner-city schools are finding outdoor education programs to be particularly effective in restoring children's interest in learning.

These are just a few of the guidelines for applying the principles of bonding. The concerned teacher will be able to create his own classroom applications.

What Would It Be Like If . . . ?

If children were birthed, bonded, raised, and educated in the ways I have indicated, what would children and our schools be like in the future? Let us imagine it is now the last years of the twentieth century. Ponder the scenario that follows.

Looking back to the mid 1970s, we saw a new social movement for birth alternatives emerge. It was initiated by Frederick Leboyer with the publication of his book and film, *Birth Without Violence*. About that time, research on maternal-infant bonding was published by Klaus and Kennell that had an impact upon expectant parents, hospital nurseries, and institutional child care facilities. At the end of the seventies, the California State Legislature passed the first legislation of its kind guaranteeing consumer birth rights to expectant parents, enabling them to choose where, when, and how their babies were to be born. Midwifery once again became legal after a 30-year ban. Statewide educational programs were initiated in conjunction with the new law so that every adult and child learned the importance of nonstressful birth practices and bonding, and the consequences that these various options had for children. Other states began to follow California's lead. Hospitals and medical associations cooperated with the new laws, prodded by the economic reality of staggering hospital costs, decreasing numbers of hospital patients, and fear of federal health care plans.

By the early eighties it was common to see young babies carried everywhere. Strollers and plastic baby carriers fell into disuse. Mothers

found that babies carried in close body contact throughout the day were happier and easier to care for. Parents of these naturally born, body-contact-carried children reported fewer incidences of colic, feeding, and toilet training problems. Such children were friendlier, more adaptable, and more precocious when given developmental tests at one year of age.

Clearly, there was emerging a type of young child whose characteristics differed greatly from those of children of past generations. One rarely saw children screaming in supermarkets or having tantrums in public places. The "new age" child, secure in the family bond, was more cooperative and self-possessed at ages 3 and 4 than had been the norm. Parents who tried the new approach to child rearing found it made parenthood easier and more enjoyable. As the parents relaxed into a reciprocal bond with their child, they learned to trust their own inner judgment more and relied less on child care books and experts. They listened to their children, took cues from their children's behavior, and responded in ways that did not negate the child's need to be an active participant in his own decisions or in situations that immediately affected the child.

About the time the first wave of these children became school age in the 1980s, a growing crisis in school finance precipitated what many educators thought was a national disaster, while others thought it a blessing in disguise. At first only small school districts were forced to close down their schools in mid-year. Then one major city after another followed suit as taxpayers voted down one tax override after another. Districts caught between a federal court order to provide education and their empty cash drawers reluctantly permitted parents to operate their own minischools by banding together and using their rebated tax monies to hire their own teachers. Such schools had greater flexibility to respond to these mostly bright, eager-to-learn students.

Financially able districts that stayed open found these new age children responding differently to traditional education than had previous generations. Extremely alert, they were also friendly and cooperative with both adults and peers. While this appeared to be a good thing, some educators were put off balance when they found that the youngsters could not be motivated by competition, behavior modification

techniques, or guilt. Secure in their bond with their families, confident in themselves, they could not be manipulated; they were immune to anxiety or fear of withheld attention or affection. The children saw no sense in working when they were bored or when tasks were irrelevant. They disliked an exclusively three Rs curriculum, and their parents, trusting the children's needs to learn through more than one approach, demanded a more experiential learning program, one that allowed for active participation in the real world and in the arts. The districts complied. When the children's minds were no longer filled with irrelevant information nor preoccupied with endless ditto sheets, their capacity for true thinking was revealed. (See Hans G. Furth, *Thinking Goes to School*, 1974.)

These children balked at attempts to make them passively dependent. They preferred, in fact, to participate fully in anything that directly affected them. Because of the fiscal cutbacks, the children and teachers were responsible for maintaining their own rooms and preparing their own lunches. The children eagerly joined in, learning skills and problem solving through this involvement in daily tasks.

As an economy measure, schools placed students in one large classroom, combining several grades and knocking out walls to make one-room schoolhouses. Older children helped teach the younger ones, who in turn learned better by teaching those younger than themselves. The rare child who came from a poorly bonded home or had learning problems was not ridiculed. Children stayed with the same teacher each year, deepening the bond between teacher and child. The younger children eventually became the elders in the class, with special privileges and responsibilities, preparing them for an adult role in society.

As we entered the last decade of the century, long overdue federal legislation was passed. It insured the rights of children and parents to have educational alternatives in schools. A child could enter school any time between 5 and 8 years of age, depending on the parents' desires and the child's needs or level of maturity. (See Moore and Moore, *Better Late than Early*, 1975.) No child was taught to read until the integrated maturity level was reached. Reading failure was a thing of the past. All academic learning was geared to coincide with brain growth spurt periods since children absorbed new learning rapidly at these

times. Other types of learning were planned for the brain growth and trough periods, such as the arts and learning about the natural environment through direct experiences.

As the twenty-first century approached, it was hard to believe that less than 25 years before, parents and teachers had feared that allowing children the freedom to choose what they needed to learn would lead to anarchy and chaos. These new age children, no longer straining against unrealistic expectations and now being adequately bonded to their parents, demonstrated that human nature has beautifully equipped us with a natural instinct to seek both survival and well-being, and that the two goals are complimentary and not antithetical.

What I have described thus far is not simply fantasy, nor really so far-fetched. As this fastback is being written, the following things are happening:

1. The California state legislature is drafting a birth rights bill that includes a vast educational program that will acquaint all children in kindergarten through twelfth grades, as well as the adult population, with birth options, their consequences, and the necessity for practices that insure bonding.

2. In October, 1977, several small school districts in Ohio were closed temporarily because of financial difficulties and taxpayers repeatedly failed to bail them out. At the same time, schools in Toledo, Cleveland, and Philadelphia were threatened with closing. That these circumstances might be the opportunity to initiate new kinds of educational options, out of necessity, is intriguing to consider.

3. The first developmental studies of Leboyer babies by the French psychologist Daniele Rapoport in 1976 demonstrated that these children, now 2- and 3-years-old, scored substantially higher on psychomotor functioning tests and showed an almost complete absence of problems typical of infancy. Also, most of them are ambidextrous.

4. In England there are now families who are raising "continuum babies," following the natural child rearing practices of the Yequana Indians described by Jean Liedloff. They carry their babies almost constantly, actually finding it easier than the traditional ways of moving a baby about. These babies are happier and achieve earlier autonomy. In Wales, an English couple described in Deakin's *The Children On the*

Hill, are raising their four children to be geniuses, merely by adhering to sound principles of bonding and acting upon the cues of the children and their own inner judgment, rather than following the advice of "experts" in child rearing. Not only are these children artistically and intellectually superior (one a brilliant mathematician before age 10, another a young Mozart), but they are secure within themselves, and apparently have never resorted to violent actions when teased or baited by other children. They go out of their way to help others and enjoy teaching their younger siblings. Such children value interdependence and find competition unrewarding.

That there are children living today who demonstrate characteristics of greater intelligence, sociability, and naturalness, whether they be the Leboyer babies, Yequana Indians, or an isolated family in Wales, is a message to us that the same possibilities exist within us all, and within each newborn child. Whether or not to support this type of development in infancy, early childhood, and in our schools is a conscious choice we need to make.

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Conclusion

A year later, Tim seems to be holding his own in school, at least his behavior and his school work are better than anyone had seen from him previously. Laura did not return to live with her grandparents this year. She writes often. Now 15, she is planning to marry soon. She sees marriage as a solution to her continuing difficulties with home and school. Laura constantly searches for her bond, which never formed.

It has been our experience that we see very different kinds of behavior, very positive results, when what we do is consistent with the principles discussed in this fastback. We happen to work with adolescents, but those who teach preschool, elementary, handicapped, or autistic children and who approach children aware of the need for bonding, have also reported positive results. Bonding is not a belief system; it is based upon good research. One does not need to believe in it; one only need be willing to try it.

Bonding knows no age limit. We are all attuned to respond to bonding given half a chance. Entering into a positive two-way interaction with another person can demonstrate that the bond furnishes its own positive reward. In a sense, bonding becomes the teacher and the two persons involved in the exchange become co-learners. Bonding may be for brief periods or it may last a lifetime.

The quality of our lives is usually measured by the extent to which our needs are satisfied. As educators we are in a unique position to support and give satisfaction to the child's need for the bond. The child who is allowed to renew, and re-know the bond through us, has a safe

place in which to learn and grow. Ultimately, that is the fundamental principle of learning to which we can all return. The decline of academic achievement in recent years is but a symptom. Is the fact that many children are poorly bonded the *cause* of this symptom? We may never have a complete answer. Yet we do know that children deprived in their basic need for relationship, whose self-esteem and sense of security is inadequate, do not learn well. We would not raise a winning football team if we recruited only from the underfed or physically ill. Schools will reflect the successes of children when children themselves are successful and happy.

To return to the basics is to return to the basic needs of the child: 1) a need to experience the security of a bond: the primary bond with the parents and a strong secondary bond with parent substitutes (like teachers); 2) a need to learn in a setting that does not do violence to the child's own inner timetable of development; and 3) a need for education that neither emphasizes one type of intelligence at the expense of another nor jeopardizes the child's natural wholeness. The true meaning of education is "to lead forth." As educators, how are we going to respond to the need for bonding, the first basic in education?

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